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PATENT PRACTICES OF THE DEPARTMENT OF COMMERCE

PRELIMINARY REPORT

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FOREWORD

Although the general policy of the Department of Commerce in cases where patents are derived from research and development contracts is to let the contractor retain title and reserve to the Government only a nonexclusive, irrevocable, royalty-free license to use the invention for governmental purposes, it deviates from this policy in cases where the Maritime Administration, one of its constituent agencies, has contracts having to do with nuclear material or atomic energy. In such cases the policy of the Atomic Energy Commission, under which the Government has power to determine the disposition of patent rights, is followed.

In the case of the Weather Bureau, another constituent agency of the Department of Commerce, where research work has been done with funds supplied by NASA and AEC, the standard patent clauses of those agencies, which give the Government the right to take title to inventions arising from the contracts, are used. Where research is done for it by colleges and universities the inventions are usually dedicated to the public by publication.

This report was prepared by Clarence M. Dinkins of the staff of the Subcommittee on Patents, Trademarks, and Copyrights, under the supervision of Robert L. Wright, former chief counsel, as part of the subcommittee's study of the U.S. patent system, conducted pursuant to Senate Resolution 55 of the 87th Congress, 1st session. It is the 13th of a series dealing with patent practices of the various Government agencies.

Government ownership of patents has been of considerable value to the Department of Commerce, as a defensive aid in interference proceedings, in infringements suits, and by being able to issue restrictive licenses where necessary, in order to protect the public health and/or safety. This Department has been reasonably successful in promoting the commercial use of patents obtained by the National Bureau of Standards. In some cases there have been more than 90 licensees of the same patent.

This report clearly shows not only the necessity of attempting to develop a uniform patent policy for the various Government agencies, but also the desirability of effecting more uniformity within any given agency.

JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate.

SEPTEMBER 29, 1961.

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PATENT PRACTICES OF THE DEPARTMENT OF COMMERCE

I. Legal Authority as to Patents

This report is concerned only with the practices of the Department of Commerce in connection with inventions produced by its employees or by the research and development expenditures of its constituent agencies. The policies of the Department in relation to the operation of the Patent Office are beyond the scope of this study. The Department of Commerce has general authority "* * * to foster, promote, and develop the foreign and domestic commerce, the mining, manufacturing, shipping, and fishery industries * * *" (5 U.S.C. sec. 596).[1] Acting for itself and through its various constituent agencies, the Department has statutory authority to engage in research and development work for the United States, any State or municipal government of the United States, or scientific societies, educational institutions, private firms, corporations, or individuals within the United States. Although the great majority of this work is carried out by the National Bureau of Standards, some inventions are developed by the following constituent agencies: (1) The Bureau of Public Roads; (2) the Census Bureau; (3) the Coast and Geodetic Survey; (4) the Maritime Administration, and (5) the Weather Bureau. The patent staff of the National Bureau of Standards presented all patent applications for the Civil Aeronautics Administration when that agency was in the Department and continues to prosecute those applications still pending in the Patent Office.

It is obvious from the nature of the statutory powers and duties allotted to the Secretary of Commerce that numerous inventions and patent problems would arise from the vast amount of research and development work engaged in, as shown by the following:

15 U.S.C.

Sec. 272. Functions of the Secretary

The Secretary of Commerce (hereinafter referred to as the the "Secretary") is authorized to undertake the following functions:

(a) The custody, maintenance, and development of the national standards of measurement, and the provision of means and methods for making measurements consistent with those standards, including the comparison of standards used in scientific investigations, engineering, manufacturing, commerce, and educational institutions with the standards adopted or recognized by the Government.

[1] See also Public Law 85-767, Public Law 86-451, 15 U.S.C. 313, 49 U.S.C. 1463, and secs. 211, 212(E), 715, 716 of the Merchant Marine Act of 1936, as amended.

(b) The determination of physical constants and properties of materials when such data are of great importance to scientific or manufacturing interests and are not to be obtained of sufficient accuracy elsewhere.

(c) The development of methods for testing materials, mechanisms, and structures, and the testing of materials, supplies, and equipment, including items purchased for use of Government departments and independent establishments.

(d) Cooperation with other governmental agencies and with private organizations in the establishment of standard practices, incorporated in codes and specifications.

(e) Advisory service to Government agencies on scientific and technical problems.

(f) Invention and development of devices to serve special needs of the Government.

In carrying out the functions enumerated in this section, the Secretary is authorized to undertake the following activities and similar ones for which need may arise in the operations of Government agencies, scientific institutions, and industrial enterprises:

(1) the construction of physical standards;

(2) the testing, calibration, and certification of standards and standard measuring apparatus;

(3) the study and improvement of instruments and methods of measurements;

(4) the investigation and testing of railroad track scales, elevator scales, and other scales used in weighing commodities for interstate shipment;

(5) cooperation with the States in securing uniformity in weights and measures laws and methods of inspection;

(6) the preparation and distribution of standard samples such as those used in checking chemical analyses, temperature, color, viscosity, heat of combustion, and other basic properties of materials; also the preparation and sale or other distribution of standard instruments, apparatus and materials for calibration of measuring equipment;

(7) the development of methods of chemical analysis and synthesis of materials, and the investigation of the properties of rare substances;

(8) the study of methods of producing and of measuring high and low temperatures; and the bahavior of materials at high and at low temperatures;

(9) the investigation of radiation, radioactive substances, and X-rays, their uses, and means of protection of persons from their harmful effects;

(10) the study of the atomic and molecular structure of the chemical elements, with particular reference to the characteristics of the spectra emitted, the use of spectral observations in determining chemical composition of materials, and the relation of molecular structure to the practical usefulness of materials;

(11) the broadcasting of radio signals of standard frequency;

(12) the investigation of the conditions which affect the transmission of radio waves from their source to a receiver;

(13) the compilation and distribution of information on such transmission of radio waves as a basis for choice of frequencies to be used in radio operations;

(14) the study of new technical processes and methods of fabrication of materials in which the Government has a special interest; also the study of methods of measurement and technical processes used in the manufacture of optical glass and pottery, brick, tile, terra cotta, and other clay products;

(15) the determination of properties of building materials and structural elements, and encouragement of their standardization and most effective use, including investigation of fire-resisting properties of building materials and conditions under which they may be most efficiently used, and the standardization of types of appliances for fire prevention;

(16) metallurgical research, including study of alloy steels and light metal alloys; investigation of foundry practice, casting, rolling, and forging; prevention of corrosion of metals and alloys; behavior of bearing metals; and development of standards for metals and sands;

(17) the operation of a laboratory of applied mathematics;

(18) the prosecution of such research in engineering, mathematics, and the physical sciences as may be necessary to obtain basic data pertinent to the functions specified herein; and

(19) the compilation and publication of general scientific and technical data resulting from the performance of the functions specified herein or from other sources when such data are of importance to scientific or manufacturing interests or to the general public, and are not available elsewhere, including demonstration of the results of the Bureau's work by exhibits or otherwise as may be deemed most effective. (Mar. 3, 1901, ch. 872, § 2, 31 Stat. 1449; July 22, 1950, ch. 486, § 1, 64 Stat. 371.)

Most of the foregoing functions are performed by the National Bureau of Standards which—

shall exercise its functions for the Government of the United States; for any State or municipal government within the United States; or for any scientific society, educational institution, firm, corporation, or individual within the United States engaged in manufacturing or other pursuits requiring the use of standards or standard measuring instruments. * * * (Mar. 3, 1901, ch. 872, § 3, 31 Stat. 1449.)

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II. Present Practice

A. ADMINISTRATION

1. Personnel

As previously mentioned the bulk of the inventions originating within the Department are developed in the National Bureau of Standards. This Bureau has many facets of research and development work. Some is done for itself, some for other agencies and bureaus of the Department of Commerce, some for other Government departments and in addition the Bureau cooperates with private concerns in research and development on a cost reimbursement basis. Applications for patents, and disposition under Executive Order 10096, as amended, of property rights in inventions made by departmental employees is under the general supervision of the Assistant General Counsel for Domestic Affairs of the Department of Commerce.

However, the Bureau maintains its own patent staff, which is under the control of that Bureau's Assistant Director for Administration.

The Bureau's patent staff consists of the following personnel:

1 Supervising attorney adviser.
1 Patent adviser.
1 Administrative officer.
1 Administrative assistant.

The Assistant General Counsel, supervising attorney adviser, and the patent advisor are registered patent attorneys. The preparation of formal patent drawings is handled by contract.

The work of the National Bureau of Standards (NBS) patent staff was described as follows by former Secretary Weeks:

> The NBS patent staff handles all patent soliciting for the National Bureau of Standards and also serves the other bureaus of the Department of Commerce in respect to the preparation and prosecution of patent applications covering inventions of their personnel. However, evaluation of inventions originating in the other bureaus and offices of the Department is separately handled as an internal matter by each such bureau. Specifically, determination of rights to inventions, recommendations for patenting, etc., are handled through the General Counsel's Office of each bureau, and through the Assistant General Counsel for Domestic Affairs of the Department of Commerce. Since patent matters arise in other bureaus only occasionally, they are processed on a case-by-case basis in the bureau involved prior to referral to the NBS patent staff. No estimate is available as to the number of employees thus involved on an incidental basis.
>
> The NBS patent staff reviews all research by employees of the National Bureau of Standards both in Washington and in the field and contacts the inventors by using established inquiry forms.[2] If the research work appears to contain patentable subject matter, the patent staff conducts a novelty search and reports to the NBS Committee on Patents, together with its recommendations.

[2] See App. A, p. 17.

The Committee on Patents of the National Bureau of Standards, which consists of five staff members versed in the various branches of science, generally meets once a month, reviews the inventions, and makes the following initial determinations:

(1) Determination of rights to the invention under Executive Order 10096.

(2) Determination as to whether the interest of the Government in the invention is sufficient to justify the cost of patenting, considering its possible importance, royalties, etc., in the light of their experience.

Patents assigned to the Government and licenses to inventions obtained under the provisions of the order and under title 35, United States Code, section 266 [3] are kept in the Office of the General Counsel of the Department. The General Counsel grants licenses under Government-owned patents. The Assistant General Counsel for Domestic Affairs of the Department is regularly involved in patent applications matters, and the Assistant General Counsel for General Legal Affairs regularly handles patent licensing and patent assignment matters. These duties are a minor part of their activities.[4]

2. Performance statistics

Statistics relating to patent activities of the National Bureau of Standards and other divisions of the Department of Commerce are incomplete in several respects and especially so for years prior to 1950. Approximately one-third of the inventions made by NBS employees have resulted from projects financed by the military agencies and the Atomic Energy Commission. The patent applications on such inventions are in most cases prepared and filed by the sponsoring agency and the patents obtained are assigned to them. The number of invention disclosures submitted to sponsoring agencies is not known for the years preceding 1953. Prior to that time such disclosures were in most cases reported directly to the attorneys of the sponsoring agencies by the technical divisions concerned without keeping any permanent record of the disclosures in the Commerce Department file. Even after Executive Order 10096 went into effect this course was followed because most of the inventions resulted from classified military projects and no question of inventor's patent rights was involved, it being understood that such inventions were automatically assigned to the Government.

Since 1953 the inventions made on sponsored projects have been the subject of a novelty search for determination of patentability by NBS. If an invention appears to have patentable novelty, it is reported to the sponsoring agency for further evaluation and possible patenting. In the event that a patent application is prepared, the sponsoring agency is given all possible assistance in its prosecution.

[3] This section provides for the issuance of a patent without charge to employees of the Government when it has been certified by the head of a department that the invention is used or is likely to be used in the public interest and if patented may be manufactured and used by or for the Government for governmental purposes on a royalty-free basis.

[4] Statement attached to letter of Aug. 21, 1958, from Sinclair Weeks, Secretary of Commerce, to Hon Joseph C. O'Mahoney, chairman, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate, hereinafter referred to as letter of Aug. 21, 1958.

The Department of Commerce has no record of applications filed for it prior to 1950 because before that date all Commerce patent applications were prepared by the Department of Justice. Records for NBS have been maintained since 1950 and for the Department of Commerce since 1954.

The following tabulation summarizes the patent activities of NBS and the Department of Commerce from 1937 through 1939 except for the omissions noted above:

Summary of patent activities of National Bureau of Standards and Department of Commerce

Calendar year	NBS inventions reviewed		Number of patents applied for, Commerce		Number of patents granted			Cumulative active patents assigned to Commerce
					Commerce		Sponsor agencies (NBS inventions)	
	Total	Forwarded to sponsors	NBS	Total	NBS	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7) [1]	(8)	(9)
1937					6	7		
1938					12	14		
1939					8	9		
1940					4	4		
1941					4	4		
1942					8	8		
1943					3	3		
1944					12	12		
1945					2	2		
1946					3	3		
1947					3	3	1	
1948					5	5		
1949					6	6	6	
1950	[2] 37	[2] 1	2		12	12	2	114
1951	[3] 41	[3] 14	16		6	6	2	122
1952	[3] 69	[3] 10	35		7	7	7	119
1953	87	29	20		8	8	13	119
1954	86	28	18	22	4	7	7	120
1955	66	25	24	30	11	11	13	113
1956	73	22	15	16	23	24	11	116
1957	75	30	21	25	16	17	12	138
1958	80	15	20	23	23	27	22	161
1959	75	23	17	18	30	33	25	186

[1] The figures in col. (7) include patents in which the Government holds only a license and will therefore not check with those in col. (9) which cover only patents which are assigned to Commerce and have not expired.
[2] Covers period from September through December 1950. Classified military inventions omitted.
[3] Classified military inventions omitted.

B. POLICY AS TO RETENTION OF TITLE

1. By employees

Employees' rights in inventions and patents, both domestic and foreign, are determined in accordance with Executive Order 10096.[5] In each case a determination is made by the bureau concerned on the basis of information collected from the inventor, his supervisors, and his associates. The Bureau's recommendation is then transmitted through the Commerce liaison officer (Assistant General Counsel for Domestic Affairs) to the Chairman of the Government Patents Board for final review.[6]

[5] For complete text of Executive Order 10096 promulgated Jan. 23, 1950, 15 F.R. 389. See App. A on p. 17 of the "Patent Practices of the Government Patents Board," Report of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U.S. Senate, 86th Cong., 1st sess.
[6] See Executive Order No. 10930 of March 24, 1961, "Abolishing the Government Patents Board and Providing for the Performance of its Functions by the Department of Commerce," which appears as App. E, p. 28.

Pursuant to provisions of paragraph 1(b) of Executive Order 10096, rights in an assignable invention are left with the inventor subject to a royalty-free license to the Government under any patents obtained, if the Government does not seek to obtain patent protection because of insufficient interest in the invention. The Department believes that this policy has an effect of encouraging inventors since certain classes of inventions, while not important to the Government from a patentability standpoint, may have considerable commercial significance.

2. By contractors and grantees

In research and development contracts the Department normally requires only a royalty-free license to any inventions which are developed under these contracts. The standard clause used by the Bureau of Standards is article X of its cost-plus-a-fixed-fee contract form.[7]

Under article X(a) the contractor grants to the Government an irrevocable option to purchase a nonexclusive license, subject to the payment of reasonable royalties, on products or processes covered by patents owned or controlled by the contractor covering inventions which were developed prior to the date of the contract.

Article X(b) provides that the contractor shall give to the Government a nonexclusive, irrevocable, royalty-free assignable license to make, use, and sell all articles or processes covering inventions which were developed under his contract with the Government excepting those inventions covered by paragraph (a). It also provides that the contractor shall make a full disclosure to the Government prior to final settlement of the contract of any inventions which were developed under the contract which have been or will be covered by patent applications. In addition, the contractor has a right to elect, upon notification of the Government, whether it or the Government shall file application for patents covering the remaining inventions.

Article X(c) provides that as to any remaining inventions not covered by patent applications as provided in paragraph (b), the Government shall have the right at the Government's expense to file applications for patents. In these cases where the applications are filed by the Government, the patent shall be assigned to the Government but the contractor may retain a nonexclusive license to use the patented invention.

Article XI [8] provides that the contractor, with certain exceptions, shall indemnify the Government against liability which may be incurred in infringement suits.

Since 1957, the standard patent clauses contained in the Armed Services Procurement Regulations have been inserted in such contracts. Research and development contracts let by the National Bureau of Standards in fiscal years 1958 to 1960, respectively, amounted to $1,069,855; $978,381; and $1,366,762. One contract entered into in fiscal year 1958, relative to the development of mail-sorting equipment, has resulted in three patents in which the U.S. Government has acquired a royalty-free license.

The Maritime Administration which spends more money for research and development contracts to be performed by profitmaking organizations and educational institutions than all of the other agencies and

[7] See App. B, p. 21.
[8] See App. C, p. 22.

bureaus of the Department of Commerce [9] has issued no published regulations regarding the disposition of patent rights arising from these contracts. A very large part of the funds used by the Maritime Administration in research and development contracts are devoted to "feasibility studies" and are not usually productive of patentable matter. These studies embrace such matters as ship design, naval architecture, and marine engineering. In addition, considerable studies are being made on nuclear power problems as they may be applied to the operation of ships. During the last 3 fiscal years, ending with fiscal 1960, only one application for a patent has arisen from these research and development contracts, and this has to do with a high-speed cargo ship and involves a submerged cargo-carrying hull. Its general patent policy, except for research relating to special nuclear material or atomic energy, is to reserve to the Government only a nonexclusive, irrevocable, royalty-free license to use for any governmental purpose any invention or discovery under any patent rights which may arise from such research.

With respect to those contracts having to do with nuclear material or atomic energy, the policy of the Maritime Administration was stated as follows:

> * * * to follow the policy of the Atomic Energy Commission as authorized by the Atomic Energy Act of 1954, as amended, and as set forth in chapter 9113 of the Manual of the Atomic Energy Commission. Depending upon how closely related to the research and development work of the Atomic Energy Commission is the particular research work contemplated, chapter 9113 provides for the use of any one of three patent clauses. In the first clause, the Government retains sole power to determine and dispose of any patent rights that may arise and no rights are retained by the contractor. In the second, the Government retains sole power to determine and dispose of any patent rights which arise, and the contractor is allowed to retain at least a nonexclusive, irrevocable, royalty-free license under such patent rights. In the third clause, the Government retains sole power to determine and dispose of any patent rights which may arise, and the contractor is allowed to retain at least a sole (except as against the Government or its account), irrevocable, royalty-free license under any such patent rights (statement furnished to the subcommittee by Mr. K. F. McClure, Assistant General Counsel, Department of Commerce, June 20, 1960, hereinafter referred to as statement of June 20, 1960).

Research obligations by the Weather Bureau for fiscal 1959 amounted to $746,459 and for fiscal 1960, $663,103. From these totals in 1959, $451,183 went to colleges and universities for research work, and $407,687 in 1960. The remaining amounts involved work which was generally in the instrumental development field. Most research conducted by the Weather Bureau is in the area of basic meteorological research which is conducted by nonprofit educational institutions. Typical of this kind of research are investigations of dynamics of hurricanes, storm surges, drought research, air pollution

[9] Contract obligations by the Maritime Administration for fiscal years 1959 and 1960 were as follows: 1959, $3,500,000; 1960, $6,600,000. Federal Funds for Science IX, National Science Foundation, tables 5 and 6, pp. 52 and 54.

travel, and general circulation of the atmosphere. This type of work has not developed patentable material. No patents have been applied for or were granted during the past 3 fiscal years as a result of any of these research and development contracts. If and when any patents should be developed, the policy of the Bureau in most cases is to reserve to the Government only the right to use the invention on a royalty-free basis. The only exception to this general rule is in cases where research and development work has been done with funds supplied by the National Aeronautics and Space Administration, and the Atomic Energy Commission. In these cases the standard patent clause of the sponsoring agency is incorporated in the contract and gives the Government the right to take title to inventions arising from the contracts. The results emanating from research work done by colleges and universities are published promptly, and this publication is considered by the Bureau to be a satisfactory public dedication of the discoveries involved.

During fiscal year 1958 the Bureau of Public Roads obligated $295,000 for research and development contracts, $393,000 in fiscal 1959, and $330,000 in fiscal 1960. These obligations were divided between nonprofit educational institutions and private organizations. However, a very large part of these obligations went to educational institutions. Because of the nature of these studies involving highways, traffic, safety, etc., they are not usually productive of patentable material. In fact no patents have been granted or applied for during the past 3 fiscal years. In the event any patents do become available, the general policy of the Bureau is to reserve to the Government only a royalty-free license. The results of these studies are given wide publication and this is considered by the Bureau to be a satisfactory public dedication of the discoveries involved.

During the past 3 years the Patent Office has engaged in letting a few contracts for research and development work having to do largely with studies in the field of searching chemical patents and chemical literature. In fiscal 1958 these obligations amounted to $20,500. There were no obligations in fiscal 1959, and in fiscal 1960 the obligations amounted to $15,750. No patents have been granted or applied for as a result of these research and development contracts during the past 3 fiscal years.

C. FOREIGN FILING

1. By employees

The Department keeps no records of foreign patent filing by its employees.

2. By contractors and grantees

The Department keeps no record of foreign patent filing by its contractors and grantees.

3. By the Government

The Department has given the following reasons for the Government's failure to procure the foreign patent protection contemplated by Executive Order 9865.

> On June 14, 1947, the President issued Executive Order 9865, which provides for the protection abroad of inventions resulting from research financed by the Government. Paragraph 3 of the order states that "the Department of Commerce shall determine whether, and in what foreign jurisdic-

tions, the United States should seek patents for such inventions and, to the extent of appropriations available therefor, shall procure patent protection for such inventions, taking all action, consistent with existing law, necessary to acquire and maintain patent rights abroad." The order also charged the Department of State with the responsibility of negotiating multilateral accords in which each participating government would grant the others royalty-free licenses to the patents it had acquired in countries other than its own.

Following the issuance of Executive Order 9865, the Secretary of Commerce delegated responsibility for the foreign patent program to the Office of Technical Services. Direct liaison was established with agencies having domestic patent holdings and the Office began receiving reports on inventions on which the Government might file foreign applications. A budget request to cover a modest staff and fees to private attorneys was denied, apparently on grounds that the Executive order was not a proper basis for an appropriation request to the Congress. This left the Office of Technical Services in the position of drawing on regular operating funds, plus dependence on industry to underwrite the costs of obtaining patent protection abroad for Government-financed inventions. Between October 1947 and November 1950, the Office issued 8 announcements listing 847 inventions. The purpose of these announcements was to invite industry to assist in the financing of the program. Industry received these approaches with small interest. One reason for this attitude was that Government policy required that financing the filing of applications and the maintenance of patents would give the sponsors no special license preferences. The exception to this attitude came from certain firms in the pharmaceutical industry which underwrote the costs of obtaining protection abroad on a selected group of Government-owned synthetic antimalarials.

Section 5 of later Executive Order 10096, issued January 23, 1950, transferred to the Chairman of the Government Patents Board the functions and duties of the Secretary of Commerce and the Department of Commerce under the provisions of Executive Order 9865. Then, by Administrative Order No. 2 of September 6, 1950, the Chairman of the Government Patents Board delegated to the Secretary of Commerce the operational functions and duties, subject to his approval, on all matters of policy.

* * * * *

Three devices for obtaining financial support for this program were attempted; none proved particularly successful. The first was to underwrite the cost of patent procurement from funds already allocated by the Congress. The sum of $17,500 was expended for this purpose largely to obtain patent protection in several countries for radio and radar inventions. Next, it was proposed to obtain industry aid in the financing. In order to achieve this, a number of lists of patentable inventions were circulated to private industry. As earlier stated this circulation was largely unproductive.

The major exception was in the case of a group of pharmaceutical companies which put up roughly $35,000 to finance the procurement of patents covering a number of synthetic antimalarials. (There was an additional antimalarial known as "primaquine" which one pharmaceutical firm agreed to finance, and I believe $6,000 was expended for its protection.)

The third method of obtaining financial support was direct budget requests. These did not survive the Budget Bureau until fiscal 1952 when they authorized a request to the Congress of slightly less than $30,000. This was not approved by the Congress. Thereafter, the Department's efforts constituted little more than receiving information from the Government agencies and relaying it to industry. Since this proved relatively useless, in April 1955 the Secretary of Commerce requested the Budget Bureau to amend or cancel Executive Order 9865 under which we had been assigned responsibility to obtain such patents. There were two reasons for this action:

1. Industry's disinterest in a program allegedly designed for their benefit.
2. A series of international agreements with NATO countries containing patent exchange clauses which would insure access to foreign inventions owned by their governments which were employed for mutual security.

The Secretary's recommendations resulted in a letter of May 18, 1955, from the Chairman of the Government Patents Board to all agencies. The effect of the letter has been to suspend Commerce participation in the program.

It should be noted that removal of the Commerce Department from the program does not mean that Government agencies may not obtain foreign patents. Instead, the authority to obtain such patents reverted to the agencies which had sponsored the research. They may choose to acquire foreign patent protection if they believe it is in their best interest to do so (statement of June 20, 1960).

* * * * *

D. USE OF PATENTS BY PARTIES RETAINING TITLE

1. Employees, contractors, and grantees

The Department keeps no records of the use which employees, contractors, or grantees make of patents owned by them.

2. Government

Most of the inventions of the Department were developed primarily for use by the Government such as automatic stencil cutters for the Bureau of the Census, computers for the National Bureau of Standards, etc. However, nonexclusive, royalty-free licenses have been granted to private industry for the use of many of them.

There have been some cases where Government ownership of patents has been of defensive aid in interference proceedings. Such ownership has also been of considerable value in regulating products or devices involving public health or safety and in protecting the Government from infringement suits. All of the licenses which have

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been granted to industry by the Department on patents developed and owned by it, involved inventions which were developed by the NBS.

The Weather Bureau and Coast and Geodetic Survey have developed new and useful procedures and apparatus which have only limited application to operations normally conducted by private parties and are usually used in small quantities. For this reason they have very little commercial significance. On the other hand, the Bureau of Public Roads and the Maritime Administration quite often develop items which are commercially useful. These two agencies, however, contrary to the policy of NBS, believe that in most cases dedication to the public by publication is to be preferred over patenting.

Although most of the licenses issued by the Department on patents resulting from NBS inventions are available to anyone on a nonexclusive, royalty-free basis, restricted licenses are issued in some cases where believed necessary to regulate products or devices involving public health and safety. For example, a carbon monoxide detector developed by NBS, U.S. Patent No. 2,487,077, has considerable commercial application for use in mines, etc. Licenses involving this patent include express conditions concerning the proven applicability and reputation of the licensee and the testing of the product before release.[10] In this way the Department has been able to exercise rigid control over quality of the detector and licenses have been refused to persons who were unable to prove their ability to meet these requirements in this particular field.

Although much of the research work of NBS is basic in nature, inventions of considerable commercial importance have been developed. In connection with the commercial importance of patents developed by NBS the Department had the following to say:

> * * * the greatest commercial success has been attained by the patents for the electroless plating of nickel and cobalt (U.S. Patents 2,532,283 and 2,532,284). These patents are basic in nature and have a wide field of application because of their simplicity and suitability for use in plating surfaces difficult if not impossible to plate by former plating techniques, for example, the inside of tubes and surfaces having sharp angles or grooves. As a result the inventions are used by the owners of small plating shops as well as by large industrial firms. Applications include the plating of the inside of railroad tank cars used for the transportation of chemicals and other materials which have previously required glass or enamel-lined tanks. Another application that has been reported is the plating of aluminum pistons, particularly the grooves into which the rings fit.
>
> Several manufacturers of electrical equipment are licensed to make and sell the apparatus covered by U.S. Patent 2,805,394, alternating-current volt-ammeters, and one manufacturer is licensed to make and sell the automatic sphygmomanometer (U.S. Patent 2,827,040) developed for the National Institutes of Health for automatically measuring and recording the blood pressure of a patient over a period of time such as during an operation.

[10] See App. D, p. 22.

In general the inventions of the Department are developed for and used primarily by the Government rather than by industry. For example, U.S. Patent 2,863,574, which deals with mail-sorting equipment has been applied to post office operations, while U.S. Patent 2,854,117, automatic stencil cutter, covers an invention developed to simplify operations of the Bureau of the Census.

The Department holds a number of patents in the computer field but these relate to special circuits for large-scale computers rather than to complete computers. The computers built by the National Bureau of Standards were designed primarily for research on computer circuits and techniques and in determining those fields in which large-scale computers can most profitably be used.

The SEAC (Standards Eastern Automatic Computer) has not only served for years as a proving ground for evaluating new computer circuits and techniques but was the first superspeed automatically sequenced electronic digital computer to go into productive operation for the Government. It has been used to solve a great variety of problems for various agencies of the Government, specific examples being the computations involved in the design of the hydrogen bomb, war game studies, and long-range weather forecasting studies.

The SWAC (Standards Western Automatic Computer), which was built in an effort to utilize the most advanced techniques then available, is in successful operation at the University of California.

The DYSEAC was installed in a motor van with the power supplies and working space housed in a second van. This mobile computer was delivered to the Signal Corps for a special application in 1954.

While the use of the computer circuits developed at the National Bureau of Standards has been primarily governmental, licenses have been granted to commercial concerns for the use of U.S. Patent 2,817,073, Multichannel tape system of storage, and U.S. Patent 2,840,799, Very rapid access memory for electronic computers (statement of June 20, 1960).

The Department of Commerce has been quite active in promoting an extensive use of patents obtained by NBS. In some cases there have been more than 90 licenses of the same patent. In connection with the granting of these licenses the Department said:

> * * * The number of subsidiary patents obtained by others in the field indicates that publication might not have protected the Government and the public.
>
> It should be noted that the number of requests for licenses is determined to a large extent by the amount of publicity given to the inventions. Dissemination of such information to industry and the public is therefore quite important.
>
> It should also be noted that the Government's policy of granting nonexclusive royalty-free licenses and the "non-policing" of infringements may have resulted in fairly wide-

spread use of Government inventions by persons not holding licenses for such use.[11]

In addition to the licenses which the Department of Commerce has granted for inventions developed and patents secured by the NBS, it has also been quite active in publicizing the availability of licenses involving patents acquired by various other Government departments. For example, in August 1959, the Office of Technical Services of the Department issued a series of seven booklets with abstracts of patents which had been released for licensing between July 1955 and June 1958. The subject matter of these booklets were as follows:

Instrumentation.
Chemical Products and Processes.
Food Products and Processes.
Metal Processes and Apparatus, Machinery, and Transportation Equipment.
Electrical and Electronic Apparatus.
Ordnance.
Ceramic, Paper, Rubber, Textile, Wood, and Other Products and Processes.

III. Agency Viewpoint

A. JUDGMENT AS TO EFFECTIVENESS OF PRESENT POLICY

Since a great majority of the Department's inventions and patents come from the NBS it feels that the views of the officials of the NBS should be given great weight because of their firsthand experience in handling so many patent matters. The NBS is very well satisfied with the present policy and favors the enactment of a uniform law with some flexibility in its administration. This law, NBS believes, should specifically provide that employees must report any inventions which they make to the agency in which they are employed. NBS believes that the present policy works well internally, promotes satisfactory employee relationships, and results in satisfactory relations between the Bureau and industry in the exchange of new ideas.

B. RECOMMENDATIONS AS TO FUTURE POLICY

The Department has made the following recommendations with respect to employee rights in inventions:

(1) With regard to the determination of rights it is recommended that the employee be permitted to retain all rights in his invention except in the following cases:

(*a*) If the invention is directly related to his assigned duties the Government should be entitled to the entire title to the invention;

(*b*) If the invention is not directly related to his assigned duties but falls within the broad field of his research or development, the Government should be entitled to a nonexclusive license or to the entire title if the invention is of broad public interest.

(2) With regard to the assertion of rights, the National Bureau of Standards favors the procedure outlined in the

[11] Letter of Aug. 21, 1958.

draft of proposed legislation prepared by the interdepartmental committee appointed by the Chairman of the Government Patents Board. This reads:

"When it is determined that the Government is entitled to the entire rights in an employee invention which is likely to be used in the public interest, the agency responsible therefor shall, consistent with limitations on disclosure of classified information or restricted data, either provide for the filing of an application for patent thereon or arrange for its dedication to the public by publication or other means as it may deem appropriate to protect the public interest; *Provided*, That the agency may, if deemed consistent with the public interest, leave to the inventor the right to file patent applications in foreign countries subject to a nonexclusive, irrevocable, royalty-free license to the Government, including the power to grant sublicenses for use in behalf of the Government or in furtherance of its foreign policies; *Provided further*, That if it is determined that an invention is of insufficient interest to warrant patenting or publication by the Government, the agency may leave rights to the inventor, subject to a license to the Government in the event a patent should be issued upon application of the inventor." [12]

The Department has made no recommendations with respect to inventions arising out of research and development contracts or grants.

[12] Letter of Aug. 21, 1958.

APPENDIXES

APPENDIX A

Invention Disclosure and Invention Evaluation Forms Used by the National Bureau of Standards

Please read instructions on back carefully before filling in data

UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards

Invention Disclosure

The invention described herein is reported by the inventor(s) in accordance with the requirements of Executive Order 10096.

1. Inventor _____ Ext. ____ Room ____ Bldg. _____
   Home address _____
   Inventor _____ Ext. ____ Room ____ Bldg. _____
   Home address _____
   Inventor _____ Ext. ____ Room ____ Bldg. _____
   Home address _____

2. Title of invention: _____

3. Brief description of invention: _____

4. Additional descriptive material attached consists of ____ pages of description, _____ drawings, _____ photographs, Report No. _____

5. This invention is expected to have the following uses: _____

6. Historical data:

	Date	Location
(a) Conception by inventor(s)		
(b) First disclosure to others		
(c) First sketch or drawing		
(d) First written description		
(e) Completion of model		
(f) First test of operation		
(g) Results of test		

7. The following persons have knowledge of the facts as stated in item 6: _____

8. Extent of use of invention, past, present, or contemplated: _____

9. Reports describing invention: _____

10. Closely related reports, patents, etc.: _____

11. Sponsoring agency, if other than NBS: _____
    Sponsor's order or contract number: _____

12. This disclosure was prepared on _____ 19 _____

13. Signature of inventor(s) _____ Date _____
    _____ Date _____
    _____ Date _____

14. Witnesses: The above-identified invention has been disclosed to and understood by me
    _____ Date _____
    _____ Date _____

INSTRUCTIONS FOR PREPARATION OF INVENTION DISCLOSURE

A record of invention is an important legal document, and proper care in its early and complete preparation will save much time and inconvenience if the invention later becomes involved in a controversy. If in doubt about any question the inventor should obtain the assistance of the NBS Patent Counsel.

While most of the items on the form are believed to be self-explanatory, special attention is directed to those indicated below.

Item 1. Give full first name and middle initial (if any) even if that is not the way you ordinarily sign your name.

Item 2. The title should be short but descriptive.

Item 4. The additional material will be most useful if it follows the outline below:

(a) General purpose of invention and possible applications
(b) Old methods, if any, and disadvantages
(c) If a device, describe the construction; if an improvement show changes, additions, etc.
(d) Give details of operation, if not covered under (c)
(e) If a chemical compound, indicate its identity or its ingredients, and steps in its production
(f) State the advantages of your invention
(g) Indicate alternate methods of construction, etc.
(h) If a joint invention, indicate what contribution was made by each inventor
(i) Features which are believed to be new.

Item 6(b). The disclosure may be made by showing and explaining descriptive material and drawings or by demonstrating the operation of a device incorporating the principles of the invention. If the former, it is desirable to ask the witnesses to read and sign the description and drawings, using the statement, "Disclosed to and understood by me this_____day of _____, 19____." Notebook entries should be handled in like manner.

Items 6(c) and (d). If sketches, diagrams, and/or a description appear in a laboratory notebook, give book and page numbers under "Location" as well as NBS, etc.

Item 6(g). Indicate whether "Fully successful", "Breadboard model made to work" or other suitable comment.

Disclosures should be submitted to the NBS Patent Counsel, 116 Far West Bldg., and each disclosure should be accompanied by an evaluation form. One copy of the disclosure is sufficient unless the invention was made in connection with work on a project sponsored by an outside agency which maintains its own patent staff. Such disclosures are forwarded to the sponsoring agency and additional copies are required for this purpose (for example, 3 copies are required if sponsored by the Army or Air Force, and 4 copies are required if sponsored by the Navy or AEC).

USCOMM-NBS-DC
3-23-59

(Please read instructions on back carefully before filling in data) NBS Case No. _____

UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards

INVENTION EVALUATION

Title of Invention _____

Inventor(s) _____ Division _____ Section _____
_____ Division _____ Section _____
_____ Division _____ Section _____

A. Statement of Inventor(s)

1. (a) Was the invention directly related to your official duties? _____
   (b) Was it made in consequence thereof? _____

2. (a) Was the invention made during working hours? _____
   (b) If so, to what NBS project was the work charged? _____

3. (a) Was the invention reduced to practice (by construction of apparatus, test of process, etc.)? _____
   (b) Was reduction to practice necessary to prove operability? _____

4. (a) Was the invention made, built, or tested with a government contribution of facilities _____, equipment _____, materials _____, or of the time or services of other governmental employees on official duty? _____
   (b) Was any other expenditure of funds involved (contracts, etc.) _____
   (c) In making the invention did you, because of your employment, have access to essential information not available to the public? _____

5. (a) What was your grade and title when you made the invention? _____
   (b) Describe briefly your duties in the above position _____

Signature of inventor(s) _____

B. Statement of Supervisor

1. Are you in accord with the replies to the above questions? _____
2. Are you confident that there is no question as to inventorship? _____
3. Is the invention technically sound? _____
4. Indicate potential value:
   To Government: Extensive _____ Moderate _____ Slight _____
   To Industry: Extensive _____ Moderate _____ Slight _____
5. Will invention require expensive development to be made practicable? _____
6. Is patenting recommended? _____

Signature of supervisor _____

I concur with the above statements _____
I concur with reservations _____ _____ Date _____
Chief, Section _____

I concur with the above statements _____
I concur with reservations _____ _____ Date _____
Chief, Division _____

INSTRUCTIONS FOR PREPARATION OF INVENTION EVALUATION FORM

Under the terms of Executive Order 10096, all inventions made by government employees must be reported, and each agency is charged with the responsibility for making a determination of patent rights and a decision as to whether or not patent protection should be sought. The evaluation form is designed to provide the NBS Committee on Patents with a basis for these decisions and also for the reports required by the Chairman of the Government Patents Board, who reviews and coordinates all activities involving the patent program of the Government.

As indicated by the form, Section A is to be filled out by the inventor(s) and passed on to the supervisor for completion of Section B. The questionnaire is then to be reviewed by the Section and Division Chiefs, who are invited to submit comments on any of the points covered.

Section A. Inventor's Statement. Section A covers the factors to be considered in determining ownership of the invention. Of these the relation of the invention to the official duties of the inventor is given the greatest weight and should receive special attention. If it is felt that the Government is not entitled to an assignment, supplementary information should be provided explaining the occasion for making the invention, its intended use, and the degree of relation it bears to the duties of the inventor. If any relation exists, information should be provided as to the specific duties and assignments of the inventor at the time the invention was made (project numbers and copy of the job description then in effect). The date "made" for this purpose is interpreted by the Chairman of the Government Patents Board as the earliest date susceptible of proof (i.e., the earliest date on which (1) the invention was reduced to practice, or (2) the essential elements were fully and clearly disclosed in writing in such manner that the invention could thereby be reduced to practice by one skilled in the art).

Section B. Supervisor's Statement. Questions 1 and 2 cover points that might give rise to controversy. An incorrect decision as to inventorship might also affect the validity of the patent. If there is any doubt, the Patent Counsel should be consulted.

Questions 3-6 deal with factors that must be considered in determining the advisability of seeking patent protection. It should be borne in mind that the invention should appear to be new, useful, and not obvious to anyone skilled in the art; or it should provide a better solution to a problem than any other known solution. Since the primary purpose of patenting government inventions is to protect the Government and the public from the necessity of paying large sums in royalties on inventions developed at public expense, the reviewer in deciding whether or not to recommend patenting a particular invention, must weigh his estimate of the probable royalties involved against the expense of filing a patent application, which now averages about $600.

One copy of the evaluation form should accompany each disclosure submitted.

USCOMM-NBS-DC

APPENDIX B

Standard Patent Clause Used by the National Bureau of Standards in its Research and Development Contracts

ARTICLE X

Patent Provisions

(a) The Contractor hereby grants to the Government of the United States an irrevocable option to purchase a nonexclusive license or licenses, subject to the payment of royalties, to make, have made, and use for governmental purposes, and to sell in accordance with law, material, and to use processes, under all United States patents and applications for patents owned or controlled by the Contractor covering inventions heretofore developed and actually or constructively reduced to practice and concerned with the Subject Work. Any such license shall be granted upon reasonable terms subject to negotiation at the time the Government may desire to exercise its option hereunder.

(b) The Contractor shall and does hereby, in consideration of the premises, and in consideration of payments to be made by the Government under the contract, grant unto the Government a nonexclusive, irrevocable, royalty-free, and assignable license or licenses, with the unrestricted right to grant sublicenses to others, to make, have made, and use, and to sell or otherwise dispose of articles, machines or material, and to use processes, under all inventions (exclusive of inventions covered by paragraph (a)) which were conceived or for the first time were actually or constructively reduced to practice as a result of the Subject Work, whether patented or unpatented. The Contractor shall make to the Government, prior to the final settlement under this contract, a complete disclosure of all inventions made in carrying out the Subject Work and shall designate in writing which of the said inventions have been or will be covered by applications for patents filed or caused to be filed by the Contractor. The Contractor shall have the right, upon notification by the Government, to elect whether it or the Government shall file application for patents on inventions in addition to those designated by the Contractor as aforesaid.

(c) As to all such inventions that are not covered by applications for patents as specified in paragraph (b) the Government shall have the right, at the Government's expense, to file, prosecute, and act upon application for patents thereon, and the Contractor shall secure the execution of the necessary papers and do all things requisite to protect the Government's interest in prosecuting such applications to a final issue. When an application for patent is filed by the Government as aforesaid, all right, title, and interest in and under the patent shall be assigned to the Government by the Contractor except that the Contractor may retain a nonexclusive license nontransferable except to an assignee of the entire business to which said license is appurtenant.

(d) The Contractor covenants that it has not entered into and will not enter into any arrangement to evade the intent of this Article for the Government to obtain without further payment a nonexclusive license to patents, applications for patents and inventions as called for in paragraph (b) above.

(e) The execution of this contract shall not constitute a waiver of any rights the Government may have under patents or applications for patents.

APPENDIX C

Indemnification Clause To Protect the Government Against Liability From Infringement Suits

ARTICLE XI

Patent Indemnity

The Contractor agrees to indemnify the Government, its officers, agents, servants and employees, against liability including costs and expenses for infringement upon any Letters Patent of the United States (except Letters Patent issued upon an application which is now or may hereafter be ordered to be kept secret under the provisions of the Act of October 6, 1917, as amended (35 U.S.C. 42)), occurring in the performance of this contract or arising (in respect only of inventions which are actually embodied in items manufactured or supplied hereunder, or are involved in the use, unless there be more than one practicable use, of such items) by reason of the use or disposal of such items by or for the account of the Government.

APPENDIX D

Restrictive License Provisions Which Are Used When Considered Necessary To Regulate Products or Devices Involving Public Health and Safety

LICENSE

This agreement, made this ____ day of _____, 19____, between the Government of the United States, as represented by the Secretary of Commerce and his successors in office, hereinafter referred to as Licensor, and _____ hereinafter referred to as Licensee,

Witnesseth that:

Whereas, the United States is now the sole and exclusive owner of the invention covered by U.S. Patent No. 2,487,077, Colorimetric Gas Detection, granted to George M. Shepherd on November 8, 1949, and

Whereas, Licensee is desirous of acquiring a nonexclusive, nontransferable, revocable, royalty-free license to use the invention covered by the above patent and to use and sell products resulting from the use of said invention,

Now, therefore, witnesseth, that for and in consideration of the public interest, Licensor does hereby license and empower, free from the payment of royalties, said Licensee to use the invention covered by said patent, and to use and sell products resulting from the use of said invention, within and throughout the United States and its territories, dependencies, and possessions. This license is

granted upon the following express conditions, forming an inseparable part thereof, to which conditions all of the parties in interest assent and accept, to wit

Licensee agrees that the practice of the invention covered by said U.S. Patent No. 2,487,077, shall be strictly in accordance with the requirements of General Specifications—NBS Carbon Monoxide Indicating Gel and Indicating Tubes, said General Specifications being attached hereto, made a part hereof, and marked "Exhibit A," provided that Licensee shall have 6 months from the effective date of this license to establish the testing procedures defined in said Exhibit A;

Licensor in granting this license, (a) does not guarantee the validity of said patent nor will it undertake to defend any suit brought against Licensee, or indemnify it, for infringement of any other patent; and (b) it reserves the right at any time or from time to time to grant other licenses under said patent and to revoke this license; the license hereby granted shall be nontransferable; and Licensee shall comply with any orders which Licensor may issue, including orders regarding the marking of any products resulting from the use of the invention covered by said patent.

In witness whereof Licensor by the Secretary of Commerce has executed this license in the City of Washington, District of Columbia, on the day and year first above written.

This License, which was executed in duplicate, shall become effective upon acceptance.

Exhibit A attached.

The United States of America.

By ----------

Secretary of Commerce.

Formally acceped, with all conditions, this ____ day of_____, 19____.

By ----------

Attest:

Exhibit A

General Specifications

NBS Carbon Monoxide Indicating Gel and Indicating Tubes

1. *Scope*

These specifications cover: (1) the preparation of materials for the NBS Carbon Monoxide Indicating Tube, (2) the design of the Test NBS Carbon Monoxide Indicating Tube, and (3) the procedure for testing the indicating gel.

2. *Applicable Documents*

The description of the preparation of materials and tubes is set forth in U.S. Patent No. 2,487,077.

3. *Specifications for Test Indicating Tube*

3.1 *Requirements*

3.1.1 *Physical Design.*—The general form and dimensions of the tube shall conform to those shown in the figure.

3.1.1.1 *Visual Examination.*—Tubes shall be free of defects including discoloration of the indicating gel, poorly defined boundaries between gels, or fragile glass seals.

3.1.2 *Chemical Preparations.*—The indicating and guard gels shall be prepared in accordance with the directions given in the patent.

3.1.3 *Preparation of Indicating Tube.*

3.1.3.1 *Selection of Materials.*—Random samples shall be selected from each of guard gel and indicating gel for test.

3.1.3.2 *Packing.*—The tube shall be packed to conform with the figure shown in Section 3.1.1. Samples of guard gel, used to prepare test indicating tubes for a given batch of indicating gel, shall be taken from the same batch of gel.

3.1.3.3 *Flow Impedance.*—Each tube shall be packed so that when the flow of air through the tube is as large as 120 ml per min. the back pressure shall not exceed 50 mm of mercury.

3.1.4 *Color Standards.*—The National Bureau of Standards Colorimetric Carbon Monoxide Indicator Chart No. 2, or its equal, shall be the color standard.

3.1.5 *Performance.*—The indicating tubes shall satisfy the specifications given in Section 3.2.

3.2 *Test Procedures*

3.2.1 *Test Conditions.*

3.2.1.1 *Standard Mixtures.*—The indicating tubes shall be tested with standard mixtures having the compositions 0.005, 0.01, 0.02, and 0.04 percent by volume of carbon monoxide in air. The compositions of these mixtures shall be within 10 percent of the nominal, but accurate to within 1 percent.

3.2.1.2 *Test Program.*—A test shall consist of the following: 8 tubes shall be exposed in random order to the 4 standard gas mixtures, 2 tubes for each standard mixture. Each tube shall be exposed for a standard time of 36 seconds when the flow as measured with a calibrated flow meter is 100 ml per min. Exposure times for standard mixtures having compositions differing by more than 1 part in 72 from those specified in Section 3.2.1.1 shall be adjusted according to the formula.

$$\text{Exposure time} = \frac{36 \text{ sec.} \times \text{Specified Concentration}}{\text{Actual Concentration}}$$

3.2.2 *Accuracy and Sensitivity.*

3.2.2.1 *Test Program.*—The performance of the indicating gel with respect to sensitivity and accuracy shall be judged by a jury of 4 (or more) experienced members. Each tube of the test set shall be compared with the NBS Color Chart No. 2 one minute after exposure. The tubes shall be compared under a white fluorescent light at a distance of

2–3 feet from the light source, against a white background behind the tubes. The tube shall be shielded from outside light by a white shield having three sides, each 15–18 inches high.

3.2.2.2 *Sensitivity.*—The color response of the tubes shall (1) encompass the range 0.005–0.1 percent by volume of carbon monoxide, and (2) detect a mixture of 0.005 percent by volume of carbon monoxide on exposure for 7 seconds (equivalent to 0.001 percent for the standard 36 seconds). The color response of the indicating gel shall be uniform over the length of the gel with no more than a quarter color step difference between the two ends of the gel.

3.2.2.3 *Instructions to the Jury.*

A. Use a "minus ¼" reading if the tube is definitely lighter than the nearest color chip.

B. Use a "plus" reading if it is impossible to decide which of the two color chips is the closest match.

C. Use a "plus ¼" reading if the tube is definitely darker than the nearest color chip, but not dark enough to be confused with the next darker color chip.

D. Slide the indicator tube along the fold of the color chart (running parallel to the fluorescent lamp) with the exit end on the left.

E. Hold the tube and chart at the angle of least glare, but still parallel to the fluorescent lamp.

F. Do not take more than 15 seconds to make any one reading.

3.2.2.4 *Interpretation of Test Results.*

3.2.2.4.1 *Interpretation of Jury Readings.*—A "minus ¼" reading is a quarter step, a "plus ¼" reading a quarter step, and a "plus" reading a half step. A full step is a full color chip difference from the standard.

3.2.2.4.2 *Three-Week Test.*—No batches shall be accepted as a result of this test. Batches shall be rejected at this test if the jury unanimously judge the tubes to be high by a half step or more for the standards 0.005 and 0.01, or low by a half step or more for the standards 0.02 and 0.04. If a batch is not rejected, it shall be held for the six-week test.

3.2.2.4.3 *Six-Week Test.*—Batches shall be rejected at this test if the majority of the jury readings are high by a half step or more for the standards 0.005 and 0.01, or low by a half step or more for the standards 0.02 and 0.04. They shall be rejected if the jury unanimously judge the tubes to be low by a quarter step for the standards 0.02 and 0.04. All other batches shall be accepted.

4. *Specifications for Field Indicating Tubes.*

4.1 *Requirements.*—Indicating tubes for field use shall conform to the specifications for Test Indicating Tubes, Section 3.1, with a tolerance of 10 percent in all dimensions. Tubes prepared from one batch of indicating gel shall also have guard gel from one batch.

4.2 *Test procedures.*—A random sample of tubes prepared from one batch of indicating gel shall be tested in accordance with the program given in Section 3.2.

4.3 *Approval.*

4.3.1 *Limited.*—Batches of tubes approved on the initial test shall be approved for one year from the date of filling.

4.3.2 *General.*—Batches of tubes to be used later than one year after filling must have a one-year test.

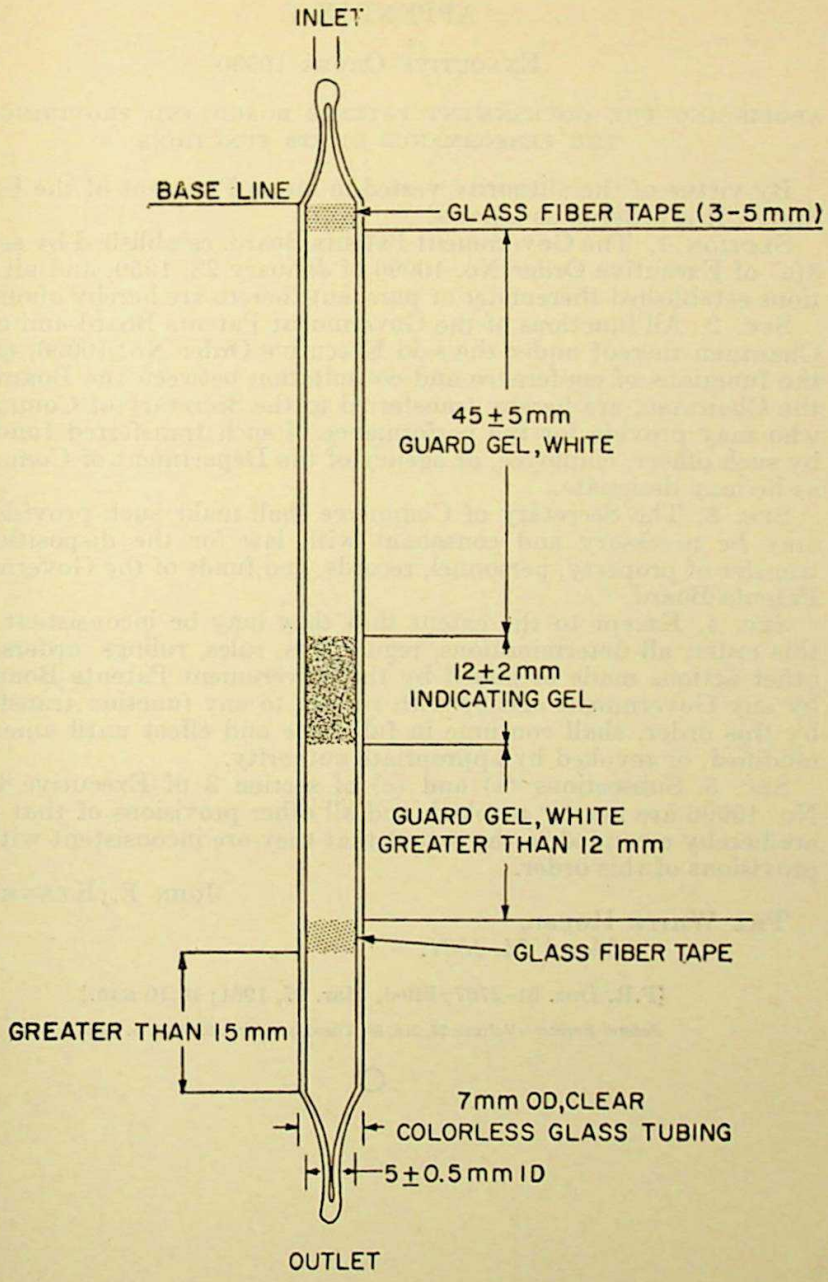
4.3.2.1 Batches of tubes shall be so marked as to warn the user of the need of a one-year test.

4.3.2.2 One-year tests shall be made by the supplier at the request of the user.

4.3.2.3 No tubes shall be approved for field use for a period exceeding two years.

5. *Marking of Unit Containers.*

Each box of tubes shall be clearly marked with the Code No. of the batch of indicating and guard gel and the date the tubes were filled. Boxes containing tubes having limited approval shall be clearly marked with the expiration date. Each box shall be marked with a label containing a notice to "U.S. Patent No. 2,487,077."



NBS CARBON MONOXIDE INDICATING TUBE

APPENDIX E

Executive Order 10930

ABOLISHING THE GOVERNMENT PATENTS BOARD AND PROVIDING FOR THE PERFORMANCE OF ITS FUNCTIONS

By virtue of the authority vested in me as President of the United States, it is ordered as follows:

Section 1. The Government Patents Board, established by section 3(a) of Executive Order No. 10096 of January 23, 1950, and all positions established thereunder or pursuant thereto are hereby abolished.

Sec. 2. All functions of the Government Patents Board and of the Chairman thereof under the said Executive Order No. 10096, except the functions of conference and consultation between the Board and the Chairman, are hereby transferred to the Secretary of Commerce, who may provide for the performance of such transferred functions by such officer, employee, or agency of the Department of Commerce as he may designate.

Sec. 3. The Secretary of Commerce shall make such provision as may be necessary and consonant with law for the disposition or transfer of property, personnel, records, and funds of the Government Patents Board.

Sec. 4. Except to the extent that they may be inconsistent with this order, all determinations, regulations, rules, rulings, orders, and other actions made or issued by the Government Patents Board, or by any Government agency with respect to any function transferred by this order, shall continue in full force and effect until amended, modified, or revoked by appropriate authority.

Sec. 5. Subsections (a) and (c) of section 3 of Executive Order No. 10096 are hereby revoked, and all other provisions of that order are hereby amended to the extent that they are inconsistent with the provisions of this order.

John F. Kennedy.

The White House,
March 24, 1961.

[F.R. Doc. 61-2767; Filed, Mar. 27, 1961; 10:10 a.m.]

Federal Register—Volume 26, No. 58, Tuesday, March 28, 1961, p. 2583

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